

PUMATT 2000 / 2500

Multi-Axis Turning Center



Multi-axis turning center combines Y-axis function, two spindles and upper &lower turret in a machine

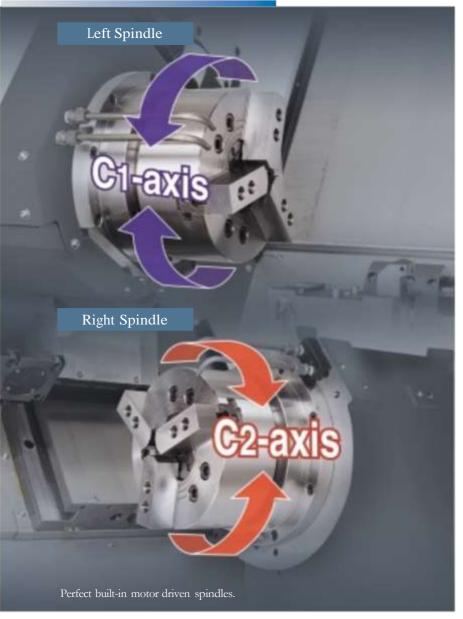
High performance turning center featuring first & second spindle that have the same power and capacity, with upper & lower turrets on the grounded box type bed. Simultaneous machining on two faces with both spindles and turrets and virtual realization of Y-axis function will bring you double productivity.

PUMATT 2000 / 2500



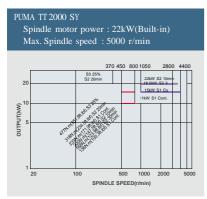


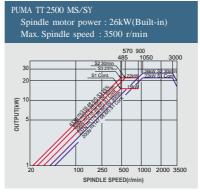
Main Spindle



Both Left and Right spindle are designed to minimize maleffects of thermal distortion which can hit continuous machining precision seriously. Especially the same capacity of both spindles improves productivity remarkably of single machine.

Main Spindle power-torque diagram





PUMA TT2000SY

Max. spindle speed 5000 r/min

 $\frac{Motor\,(10\,\text{min})}{22\,kW}$

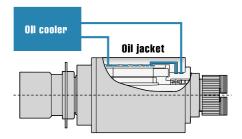
PUMA TT2500MS/SY

Max. spindle speed 3500 r/min

 $\frac{\text{Motor (30 min)}}{26 \text{ kW}}$

Oil Cooling Unit for Spindles

Both left and right spindle have built-in motor spindles that wholly covered with oil cooling system to ensure remarkable range of applications from heavy duty cutting with high power at low speed to fine to finish cutting at high speed and optimize thermal displacement.

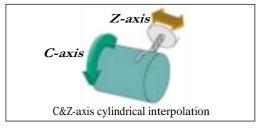


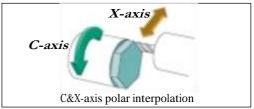
Perfect C-axis Control of Both Spindles

C1, C2-axis index 360 (in 0.001 increment)

C1, C2-axis braking torque 1103 N·m

C1, C2-axis contouring torque 366 N·m





Turret





Total of 24 tool stations upper and lower turret(BMT65P) make it possible to complete complicated parts requiring many tools in just one set-up. Reliable servo driven turrets reduce the total cycle time required to machine parts.

Harmonization of upper & lower turret

Radial BMT65P



The turret features BMT65P style tooling in which the toolholders are mounted directly to the turret s periphery using 4 large bolts.

Rotary tool spindle power-torque diagram

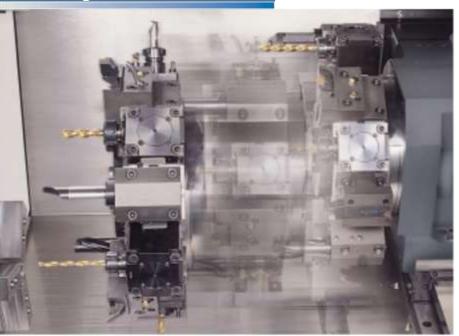


Index time (1-station swivel)

No. of tool station (Upper+Lower turret)

0.20 s 24 stations (12+12)

Rapid Traverse



x-axis 20 m/min z-axis 24 m/min



Outstanding rigidity for high feedrates



Scraping of Slideway

Robust Design

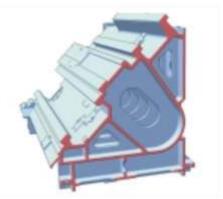
Stable base for supporting high-speed, high-precision machining.



All guide ways are wide wraparound rectangular type for unsurpassed long term rigidity and accuracy



FEM (Finite Element Method)



The heavily ribbed torque tube design prevents twisting and deformation.

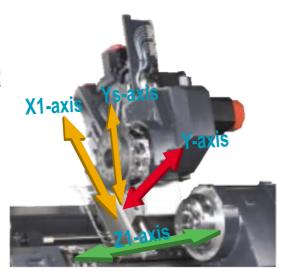
Virtual y-Axis Function

Y-axis addition to upper turret on SY series brings complex machining to completion in just one set-up. Synchronous interpolation of X1-axis and Ys-axis in double ways structure creates the Y-axis function

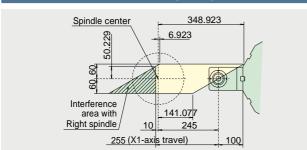
Y-axis travel

120 mm (60mm)

Y-axis rapid 7.5 m/min



Y-axis Working Range



Angular miling unit moving area

Y-axis Working Range

By simultaneous X-Y-Z-axis feed control and C-axis function to guide precise circular orientation of spindle, Y/X axes circular interpolation simplifies the machining of complex shapes in faster cycle time.



On-center face groove



Poly-side machine

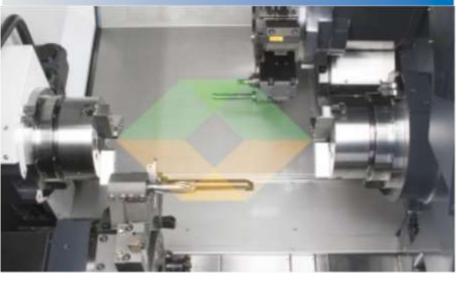


Off-center side groove



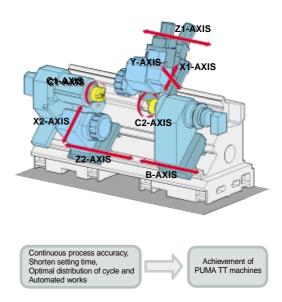
Y&X-axis circular interpolation

Machine Construction



Perfect integration of multi-process and high productivity are achieved by Left & right spindle of the same power and capacity, with upper & lower turrets on the grounded box type bed.

Process integration by just one setup



Axis Features

Travel

X1axis (Upper turret)

255 mm

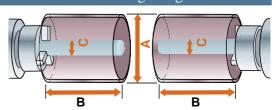
Zlaxis (Upper turret) 800 mm

190 mm

X2-axis (Lower turret) Z2-axis (Lower turret) 900 mm

B-axis 810 mm X1-axis

Machining Range



A: Max. turning 390 mm

(on Upper turret)

300 mm (on Lower turret)

B: Max. turning 350 mm length

C: Max. bar working dia. 76 (67)*1mm

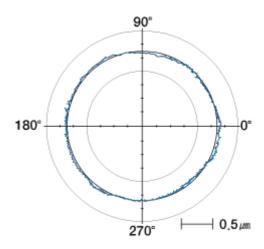
*1: TT2000SY

Reliable Long-Run Machining Accuracy



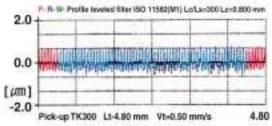
Roundness

0.45



Roughness

0.23 Ra



Tool	Diamond Tool [nose R0.8]
Material	AL2024
Outer diameter (mm)	60
Spindle speed (r/min)	1300
Feedrate (mm/rev)	0.05

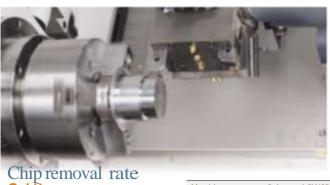
The machining accuracy indicated is just for reference. Depending on cutting and environmental conditions during measurement, the results can be different.

Machine Capacity*1

Stable performance in all machining range.

Heavy-Duty Cutting, OD (Left spindle & upper turret)

Making full use of the high output motor, heavy-duty O.D. cutting is powerful and precise even with large workpieces.



348 cm³/min

Cutting depth 10 mm

		1.3

120 0.36

320

Cutting speed (m/min)

Spindle speed (r/min)

Feedrate (mm/rev)

Balanced Cutting, OD (Left spindle & upper - lower turret)

The synchronous control of Upper and Lower turrets makes O.D. cutting with high precision balanced cutting.



Cutting depth (upper & lower turret)

5 mm

Drilling



Tool	ø 20 HSS drill
Material	Carbon steel SM45C
Rotary tool spindle speed (r/r	min) 1000
Feedrate (mm/rev)	0.3
Chip removal rate (cm³/min)	60
Drilling depth (mm)	10

Tapping

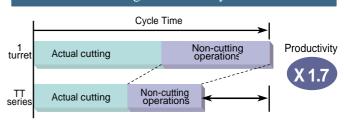


Tool	M16 2.0
Material	Carbon steel SM45C
Rotary tool spindle speed (r/mi	in) 600
Feedrate (mm/min)	1200

Machining Examples



High Productivity



Note) The cutting test results indicated above are obtained as an example through real test cutting. The results may not be obtained due to differences in cutting and environmental conditions during measurement.

*1: on TT2500MS

Ergonomic Design

Carefully tailored ergonomic operating environment.

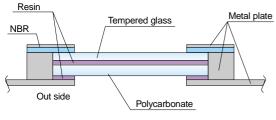
Safety & Operability

Safety window on front door

Viewing window is designed and was tested under heavy condition to protect operator against possible dangers during real cutting thanks to its shock absorbing laminated glass and double panel construction.

The window without grating also provides a clear view of the machine inside.







High maintainability



Eco-Friendly Design

Perfect integration to care environment of human and earth

Collection of Waste Lubrication Oil

Less waste lubrication oil extends the life time of the coolant water and cut down the grime and offensive smell of the machine inside.

No Coolant Leakage

Rigorously designed, manufactured and tested machine covers do not permit coolant leakage in any condition. The factory always keeps our environment clean.

Oil Skimmer (opt.)

Another suggestion to prolong the life time of the coolant water. A belt-driven type oil skimmer picks up and removes waste oil from the coolant tank that is easily drained.



Optional Equipments

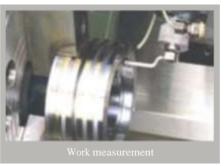












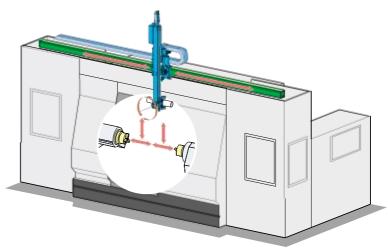


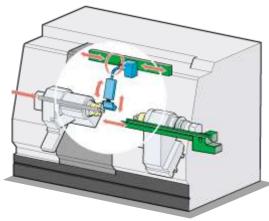
Optimal Support System of Automatic Operation (option)

Gantry Loader Application

TT series can be integrated perfectly with a high-speed gantry loader to increase productivity in both short and long production runs.

Max. work diameter	255mm
Max. work length	160mm
Max. work weight	15kg
Max. speed of X-axis	90m/min
Max. speed of Z-axis	100m/min
Number of pallets	14 stations
Stack height	450mm





Parts Unloader & Conveyor

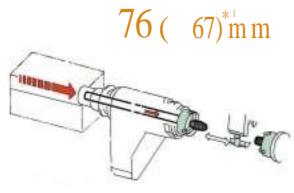
Parts unloader system built inside the machine can receive workpieces from both spindles. Automated operation is realized perfectly when the system is coupled with bar feeder system.

Max. work diameter	76mm
Max. work length	170mm
Max. work weight	4kg

Bar Feeder System

Automated bar working is possible by bar feeder system. When parts unloader system is added, its value of use will be in the best.

Max. Bar Working dia





*1: on TT2000SY.

Note) Depending on the chuck and cylinder spec. used in the machine, the bar working dia. can be reduced.

Easy Operating System



Easy operating system has designed operation the many different machine in our products. We has supplied ease operation and high reliability with user-friendly interface to customer production lines.

Standard Features

High compact CNC is realized through LCD display with integrated CNC and a flash memory card interface is standard features.

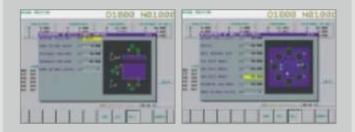
Provides many support functions for set-ups, such as tool measurement, workpiece measurement at the original point, and workpiece measurement inside the machine.

Uses one display screen to perform all operations including programming, checking by animation, and real machining.

User-Friendly Operation : Soft key Selection of Comprehensive Cycle Library

Guide for machining preparation

In preparation for machining, simple instructions on a selected screen allow to measure the setting error of workpiece and tool offset value for automated adjustment.



Easy operation system

One single screen provides handy operation guidance for programming through machine operation.



For machining center, turning center and compound machine with milling and turning.

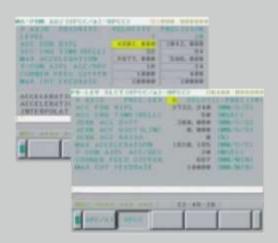
Solid modeling provides high speed animation. (TFT-LCD Color Only)

Icon menu soft-keys provide convenient programming for sophisticated milling and turning.

Measurement cycles provide automatic offset measurement of workpiece (Available for machining center and for compound machine).

Machining condition selecting function

One single screen provides convenient operation & parameter setting for high speed and high precision machining instructions.



Registration of parameter sets for high speed machining and/or for high precision machining with machine configurations.

Instruction of precision level for desired machining selects appropriate parameters automatically.

Precision level can be instructed through NC program.

Tooling System (Upper & Lower turret)

unit: mm OD, FACE, CUT-OFF OD Tool (25) TURNING TOOL Cutting Tool (25) **ID HOLDER** 12st Upper Turret 16-H40 25-H40 **BMT 65P** 20-H40 25-H40 32-H40 12st Lower Turret **BMT 65P ROTARY TOOL** 3,4,5,6,7,8,9,10 11,12,13,14,15,16

17,18,19,20

Note) Above tooling system is our recommendation. Depending on export condition, the standard tooling packed with the machine can be different.

PLUG

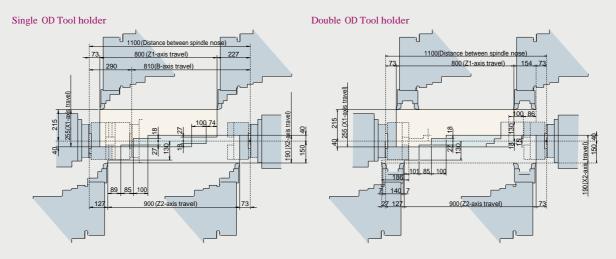
Angular Milling Head For Face Cutting

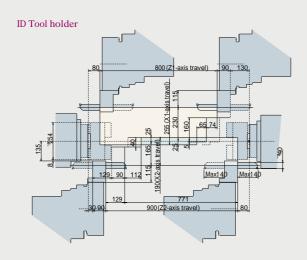
Dummy Plug

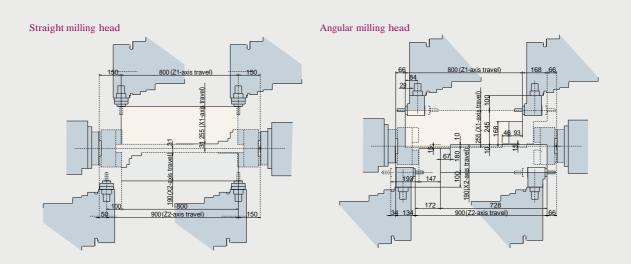
Working Range

unit: mm

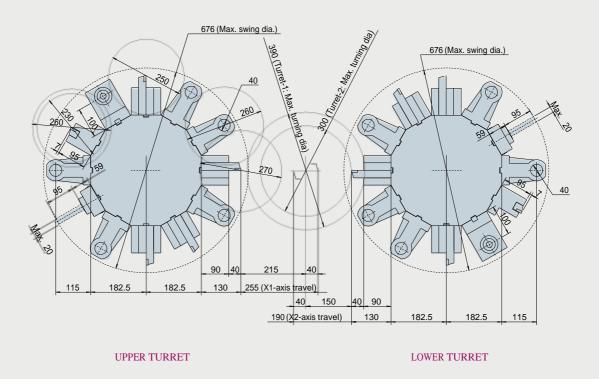
PUMA TT 2000 SY/2500 MS/2500 SY



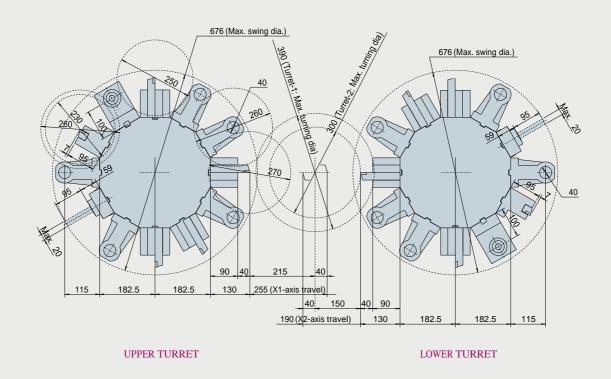




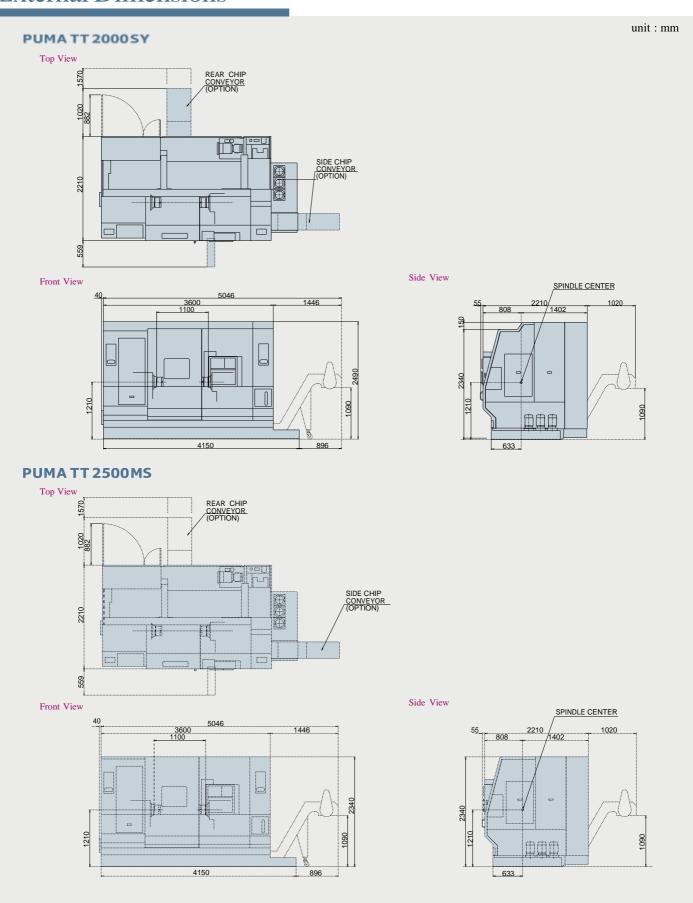
PUMA TT 2000 SY unit : mm



PUMA TT 2500MS PUMA TT 2500SY



External Dimensions



Machine Specifications

	Description		Unit	PUMA TT2000	PUMA TT2500MS	PUMA TT2500SY	
	Swing over bed		mm		800	•	
	Swing over saddle		mm		620		
	Recom. Turning diameter		mm	210 255			
Capacity	Max. Turning diameter		mm —		U Turret : 390		
	Max. Turning length			L Turret : 300			
	Bar working diameter		mm	ø 65	350	ø76	
						3500	
	Spindle speed Spindle nose		r/min ASA	5000 A2#6		A2#8	
				110		130	
Left Spindle	Spindle bearing diameter (Front) Spindle through hole		mm	ø76		ø 90	
•			mm deg	0/0	360 (in 0.001)	090	
	Cs Spindle Index angle Cs Spindle Index Speed				200		
			r/min	5000	200	2500	
	Spindle speed Spindle nose		r/min	5000		3500	
Right Spindle	Spindle bearing diameter (Front)		ASA	A2#6 110		A2#8 130	
			mm				
- 1	Spindle through hole		mm	ø76	260 (m 0.001)	ø 90	
	Cs Spindle Index angle		deg		360 (in 0.001)		
	Cs Spindle Index Speed	X74 /0 :	r/min		200		
	Travel distance	X1/2-axis	mm		X1: 255 <215+40>		
					X2: 190 <150+40>		
		Z1/2-axis	mm		Z1: 800, Z2: 900		
Carriage		B-axis	mm		810	1	
	Rapid traverse	Y-axis	mm	120< 60>	=	120 < 60>	
	.,	Z1/2-axis	m/min		24		
		B-axis	m/min		24		
		Y-axis	m/min	7.5	-	7.5	
	Max. cutting feedrate	X1/2-axis	mm/rev		500		
	0	Z1/2-axis	mm/rev		500		
		B-axis	mm/rev		500		
		Y-axis	mm/rev	500	-	500	
	No. of tool stations (Upper+Lower)	st		12+12	·	
	OD tool height	,	mm		25		
Turret	Boring bar diameter (Main/Sub)		mm		ø 40		
	Indexing time		S		0.2		
	Rotary tool spindle speed		r/min		4000		
	Left spindle motor (Int./Cont)		kW	22/15 (10min)	26	/22 (30min)	
	Right spindle motor (Int./Cont)		kW	22/15 (10min)	26	/22 (30min)	
	Rotary tool spindle motor (15min /		kW		5.5/1.5		
	Servo motor	X1-axis	kW	4.0	3.0	4.0	
Motor		X2-axis	kW		3.0		
MOTOL		Z1-axis	kW		4.0		
		Z2-axis	kW	4.0			
		B-axis	kW		4.0		
		Y-axis	kW	3.0	-	3.0	
	Coolant pump	<u></u>	kW		0.9		
			kVA	83.15	95.6	95.77	
	Electric power supply (Rated capaci	ty)	K V A	05.15			
		ty)	mm	2480	2330	2480	
Other	Electric power supply (Rated capaci	length			2330 4050	2480	
Other	Electric power supply (Rated capaci Machine height		mm		2330	2480	

Standard Feature

Absolute positioning encoder
Air blast for chuck jaw cleaning
Coolant supply equipment
Foot switch
Front guard door inter lock
Full enclosure chip and coolant shield

Hand tool kit (including small tool for operations) Hyd. chuck & actuating cylinder Hydraulic power unit Leveling jack screw & plates Lubrication equipment

Soft jaws (total) Spindle oil cooling unit Standard tool kit (tool holder & boring sleeve) Work light

Safety precaution name plates

Optional Feature

Air gun
Automatic door
Automatic door with safety device
Automatic power off
Automatic measuring system*(in process touch pro

Automatic measuring system*(in process touch probe)
Bar feeder interface
Bar puller
Chip conveyor

Chip bucket
Collet chucks*
Coolant blower
Dual chucking pressure
Hardened & ground jaws
High pressure coolant pump
Minimum Quantity Lubrication (MQL)system
Oil skimmer

Proximity switches for chuck clamp detection Pressure switch for chucking pressure check Parts unloader and conveyor Signal tower (yellow, red, green) Special chucks

Tool monitoring system
Tool pre-setter (hydraulic type)

Note) *: It should be reviewed in detail before contract.

Design and specifications are subject to change without prior notice.

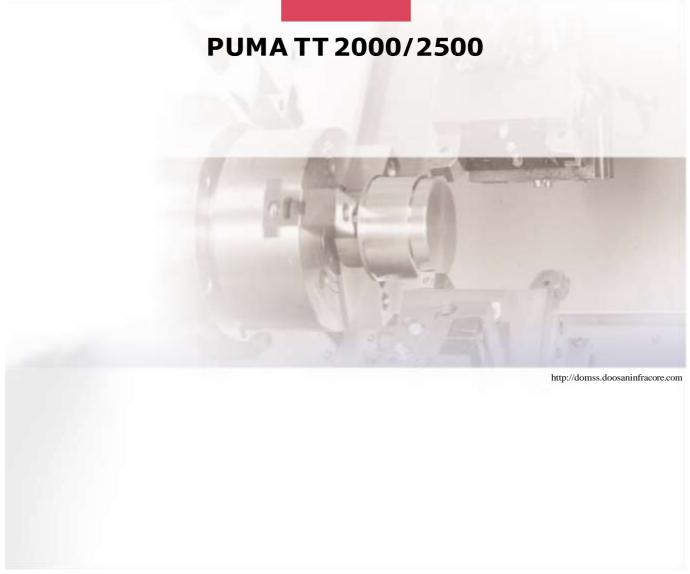
Doosan is not responsible for difference between the information in the catalogue and the actual machine.

Manuals

NC Unit Specifications(Fanuc 18i-TB)

- Angular axis control - Ane. control D. PMC Ane. control D. PMC Ane. control D. PMC Ane. control D. PMC Backlash compensation - Backlash compensation for each rapid traverse and cutting feed - Chamfering en/off - Controlled axes expansion (total) - Max.8 [4+4] ax - Backlash compensation for and traverse and cutting feed - Chamfering en/off - Controlled axes expansion (total) - Max.8 [4+4] ax - Backlash compensation - Backlash control - Backlash compensation - Backlash	- Controlled path - Controlled axes TP20008V - 9 AVES TP2500MS - 7 AVES TP25008V - 9 AVES	2 pat
- Axis control by PAC - Arbitrary angular asis control Declaral, compensation 0 - 9799, puls Declaral, compensation 0 - 9799, puls Declaral, compensation 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 9799, puls Declaration 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0		4 axe
- Advisory angular axis control - Dealestain compensation - Chamberg or left - Chamberg		
- Backlash compensation for each rapid traverse and outling feed - Chamiting control manusing (road) - Ca continuing control - Ca continuing control - Ca continuing control - Ca continuing control - Ilma control - Il	- Arbitrary angular axis control	0 0000 1
- Controlled axes expansion (notal)	Backlash compensation Backlash compensation for each rapid traverse and cutting feed	0 ~ 9999 pulse
- Se contouring control - Ding Act & Dec control - Hill Control - Machine lock - All axis / cach ax - Markine lock - All axis / cach ax - Mirror image - Occerned - Occerned - Hill Control - Simultaneous controlled axes expansion (rotal) - Stored pitch carror compensation - Stored pitch carror compensation - Noted stroke check I Simultaneous controlled axes expansion (rotal) - Mary Act - Stored pitch carror compensation - Noted stroke check I Hardie incremental feed - Mary Act - All axis / cach ax - Hill Control - Hill C	- Chamfering on/off	M 9 [4+4]
- Jime Ace & Dec control - Follow-up - Follow-up - Follow-up - Hilly Control - Machine Beek - All axis / coch as - Minor image - Overtravel - More in the Control - Machine Beek - Overtravel - Overtravel - Domition switch - Simultaneous controlled axes expansion (total) - Minor image - Overtravel - Stored pitch correct companion - Stored stroke check I - Hilly Control - Stored stroke check - Hilly Control - Hilly Control - Stored pitch correct companion - Stored stroke check - Hilly Control		Max.o [4+4] axe
Follow-up Foll	- Emergency stop	
- J.H.S.Y. control - J. control	- Follow-up	
- Interference check for roater area - Overtravel - Overtravel - Overtravel - Position switch - Serio off - Position switch - Serio off - Stored pitch cereor compensation - Stored pitch cereor - Stored p		
- Interlock	- Inch / Metric conversion	
- Least input command		All axis / each ax
- Mirror image - Position switch - Simultaneous controlled axes expansion fotal) - Max4 ax - Stored pitch error compensation - Stored spitch crox compensation - Stored stroke check 1 - Unexposered disturbance torque detection function - Position of the Position		0.001 / 0.0001 mm/inc
- Position switch - Simultaneous controlled axes expansion (total) - Simultaneous controlled axes expansion - Junean controlled sixthance torque detection function - Position of the simultaneous controlled sixthance torque detection function - Automatic operation (memory) - Junean controlled sixthance torque detection function - Automatic operation (memory) - Junean controlled sixthance torque detection function - Junean controlled sixthance torque detection function - Junean Lander controlled sixthance torque detection function fu		All axis / cacii ax
- Servos off - Simultaneous controlled axes expansion (total) - Stored pitch error compensation - Stored store check - Stored stored check - Stored		
- Stored pitch error compensation - Unexpected disturbance torque detection function - Program - Stored stroke check 1 - Unexpected disturbance torque detection function - Program number search - Manual program - Program number search - Seapence number search - Seapence number search - Program number search - P	- Servo off	
- Stored stroke check 1 - Inversered disturbance torque detection function - PERATURN - Laurentac operation (memory) - Laurentac operation (memory) - Dr. run - I - Laurentac operation (memory) - Dr. run - I - Laurentac operation (memory) - Dr. run - I - Laurentac operation (memory) - Dr. run - I - Laurentac operation of the company of		Max.4 axe
Automatic operation (memory) - Julier register - Julier generator - Julier gener	- Stored stroke check 1	
- Automatic operation (memory) - Buffer register - Dyr, nn - Linalde, incremental feed - X1, X10, X10 - Manual incremental feed - Annual pubse generator - Annual reference position return - Minual pubse generator - Program number search - Program member search - Program member search - Program member search - Registration of the search feed generation of the search generation of the se	- Unexpected disturbance torque detection function OPERATION	
- Dr. run - Handle incremental feed - 1.0G	- Automatic operation (memory)	
- JOG feed - Manual handle feed - Manual handle feed - Manual handle feer recommend - Manual handle generator - I - Manual pale generator - Manual reference position return - Manual reference position return - Manual reference position return - Program resurt - Sequence mumber search - Single block - MIREPOLATION FUNCTIONS - Ist, reference position return - Generator of the pale of the p	- Dry run	
- Manual handle feed		X1, X10, X10
- Manual pulse generator - Manual polse generator - MD1 operation - Program number search - Program number search - Program restart - Sequence number search - Ground interpolation - Devel (per sec) - Continuous threading - Cylindrical interpolation - Devel (per sec) - Continuous threading - Cylindrical interpolation - Gi - Helical interpolation - Gi - Search of the search sear	- Manual handle feed	1 ur
- Manual reference position return - MDI operation - Program number search - Program number search - Sequence number search - Stapide block - MICROCATION PUNCTIONS - MICROCATION PUNCTIONS - MICROCATION PUNCTIONS - MICROCATION PUNCTIONS - Balance cutting (Only for 2 path) - Balance cutting (Only for 2 path) - Gondan internolation - Gondan internolation - Gondan internolation - Continuous threading - Countinuous threading - Cylindrical interpolation - Davel (per sec) - Helical interpolation (Only with Y) - Linear interpolation - Davel (per sec) - Helical interpolation - Dolyon turning - Older coordinate interpolation - Polyon turning - Older coordinate interpolation - Older o	- Manual intervention and return	
- MDI operation - Program restart - Program restart - Program restart - Program restart - Sequence number search - Program restart - Sequence number search - Sequence position return - Manual, Gr Sequence position return - Go Go.	- Manual reference position return	1 (
- Program restart - Sequence number search - Single block NIREPOLATION FUNCTIONS - Ist, reference position return - Balance cutting (Only for 2 path) - Continuous threating - College of Continuous - Continuous threating - College of Continuous - Continuous threating - College of Continuous - Continuous threating - Conti	- MDI operation	
- Sequence number search - Single block NERPOLATION FUNCTIONS NERPOLATION FUNCTIONS NERPOLATION FUNCTIONS NERPOLATION FUNCTIONS Startegrence position return G. - Ind. reference position return G. - Islance cutting (Only for 2 path) - Groular interpolation G. - Groular interpolation - Cylindical interpolation - Holical interpolation - Polyton turning - Gid - Holical interpolation - Polyton turning - Gid - Polyton turning - Polyton turning - Polyton turning - Gid - Sispin - Gid - Superimposed control - Synchro / composite control - Synchro / composite control - Synchro / composite control - Synchro / Torque limit skip - Thread cutting / Synchronous cutting - Thread cutting / Synchronous cutting - Thread cutting / Synchronous cutting - Thread cutting retract - Torque limit skip - Torque limit skip - Feb PUNCTION - Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per minute - Feed per min	- Program restart	
NIRROLATION FUNCTIONS - Ist. reference position return - 2nd. reference position return - 3nd. and	- Sequence number search	
- 2nd. reference position return - Gradian interpolation - Gradiar interpolation - Gradiar interpolation - Cylindrical interpolation - Cylindrical interpolation - Cylindrical interpolation - Dwall (per special organism) - Helical interpolation - Helical interpolation - Helical interpolation - Multiple threading - Cylindrical interpolation - Multiple threading - Robar coordinate interpolation - Polyzon turning - Postinoning - Reference position return check - Gradian - Skip - Reference position return check - Gradian - Skip - Ski	- Shighe Block NTERPOLATION FUNCTIONS	
- Balance cutting (Only for 2 path) - Circular interpolation - Continuous threading - Cylindrical interpolation - Dwell (per sec) - Helical interpolation - Continuous threading - Polar coordinate interpolation - Polygon turning - Polar coordinate interpolation - Polygon turning - Possitioning - Polar coordinate interpolation - Polygon turning - Possitioning - Polar coordinate interpolation - Polygon turning - Possitioning - Reference position return check - Gi - Skip - Skip - Gi - Superimposed control - Synchro / composite control - Thread cutting / Synchronous cutting - Feed per revolution feed - Feed per revolution feed - Override cancel - Feed per revolution feed - Override cancel - Feed per revolution feed - Override cancel - Rapid traverse override - Override cancel - Rapid traverse override - Rapid traverse override - Rapid traverse override - Rapid traverse override - Override cancel - Rapid traverse override - Rapid traverse override - Rapid traverse override - Override cancel - Rapid traverse override - Rapid traverse overri	- 1st. reference position return	Manual, G2
- Continuous threading - Cylindrical interpolation - Dwell (per sec) - Helical metropolation (Only with Y) - Linear interpolation - Polar interpolation - Polar coordinate interpolation - Superimposed control - Sunchro / composite control - Thread cutting / Synchronous cutting - Peed per revolution / deceleration - Cutting feedrate clamp - Feed per revolution - Peed per revolution (ede) - Peed per revolution (ede) - Override cancel - Peed per revolution (ede) - Override cancel - Override cancel - Rapid traverse override - Override cancel - Rapid traverse override - Override cancel - Rapid traverse override - Verride cancel - Rapid traverse override - Rapid traverse override - Verride cancel - Rapid traverse override - Verride cance	- Balance cutting (Only for 2 path)	
- Cylindrical interpolation - Dowled (per sec) - Get - Helical interpolation (Only with Y) - Linear interpolation (Only with Y) - Linear interpolation - Get - Helical interpolation - Get - Helical interpolation - Get	- Circular interpolation	G(
- Helical interpolation (Only with Y) - Linear interpolation - Multiple threading - Polar coordinate interpolation - Polygon turning - Positioning - Reference position return check - Gi - Skip - Gi - Reference position return check - Gi - Skip - Superimposed control - Synchro / Composite control - Thread cutting / Synchronous cutting - Thread cutting retract - Torque limit skip - Thread cutting retract - Torque limit skip - EED FINCTION - Automatic acceleration / deceleration - Cutting feedarts champ - Feed per minute - Feed per menute - Feed per revolution - Feedarts override (10% unit) - Go feed override (10% unit) - Go feed override (10% unit) - Manual per revolution feed - Override cancel - Rapid traverse override - Rapid traverse override - Tangential speed constant control - MULILARY / SPINDLE SPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M code function - M code function - M Code function - M code function - M St. S. dig - Spindle speed output - Auxiliary function lock - Constant surface speed control - M code function - S code functi	- Cylindrical interpolation	
- Linear interpolation - Multiple threading - Polar coordinate interpolation - Polygon turning - Positioning - Reference position return check - G. S. Skip - G. Superimposed control - Synchro / composite control - Thread cutting restract - Torque limit skip - FED FINCTION - Automatic acceleration / deceleration - Gutting feedrate clamp - Feed per minute - Feed per revolution - In Feed per revolution - Synchro / Composite control - Rapid traverse override - Rapid traverse revolution feed - Override cancel - Rapid traverse revolution feed - Override cancel - Rapid traverse seed traverse override - Rapid traverse revolution - Synchro / Composite control - Williamy Sprindle Speed output - Auxiliary function lock - Constant synchro fock - Constant synchro fock - Synchro foc	- Dwell (per sec) - Helical interpolation (Only with Y)	G(
- Polay coordinate interpolation - Polygon turning - Positioning - Positioning - Reference position return check - G. G Skip - Superimposed control - Synchro / composite control - Synchro / composite control - Thread cutting / Synchronous cutting - Thread cutting retract - Troque limit skip - Position / Composite control - Troque limit skip - Position / Composite control - Automatic acceleration / deceleration - Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per minute - Feed per minute - Feed per revolution - Feed per revolution feed - Override (10% unit) - O - 200 - 10g feed override (10% unit) - O - 200 - 10g feed override (10% unit) - O - 200 - Override cancel - Rapid traverse override - Tangential speed constant control - Synthial synthylogologologologologologologologologolog		G(
Polygon turning		
Reference position return check Sisp Sisp Sisp Superimposed control - Synchro / composite control - Thread cutting / Synchronous cutting - Thread cutting retract - Torque limit skip EED FUNCTION - Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per revolution - Feed per revolution - Feed per revolution - In feed override (10% unit) - In feed	- Polygon turning	
Skip Gi Superimposed control Sunchro / composite control Thread cutting / Synchronous cutting Thread cutting / Synchronous cutting Thread cutting ference Torque limit skip ED FUNCTION - Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per minute - Feed per minute - Feed per revolution - Feed per revolution feed - Override coveride (10% unit) - O - 2000 mm/m - Manual per revolution feed - Rapid traverse override - Rapid traverse override - Rapid traverse override - Rapid traverse override - Tannential speed constant control - WILLIARY / SPINDLE SPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M code function - Multi spindle control - Rigid impring - Sc. code function - Spindle speed override - Spindle spindle control - Rigid impring - Sc. code function - Spindle spindle control - Rigid inchination - Absolute / incremental programming - Addition of custom macro common variables - Spindle spindle oriental programming - Addition of custom macro common variables - Canned cycle for drilling - Canned cycle for drilling - Canned cycle for turning - Gircular interpolation by R programming - Canned cycle for drilling - Canned cycle for turning - Gircular interpolation by R programming - Dienet input of coordinate system setting - Canned cycle for turning - Gronton in Out - Coordinate system setting - Canned cycle for turning - Dienet input of coordinate system shift - Custom macro - Decimal point programming - Dienet drawing dimension programming - Dienet		
- Synchro / composite control - Thread cutting / Synchronous cutting - Thread cutting / Synchronous cutting - Thread cutting retract - Torque limit skip - Seed per minute - Feed per minute - Feed per minute - Feed per minute - Feed per revolution - Feedrate override (10% unit) - O - 200 - Og feed override (10% unit) - O - 200 - Owerride cancel - Rapid traverse override - Rapid traverse override - Rapid traverse override - Tangential speed constant control - MILILARY / SPINDLE SPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - MILILARY / Spindle control - Multips spindle control - M code function - M code function - M Spindle speed output - Auxiliary function lock - Spindle send output - Spindle send output - Spindle send output - Spindle send output - Spindle speed override - Spindle synchronous control - Spindle synchronous control - Rigid tapping - Spindle synchronous control - Condinate synchronous control - Spindle synchronous control - Condinate synchronous control - Control in Out - Coordinate system setting - Canned cycle for turning - Control in Out - Coordinate system setting - Control in Out - Coordinate system setting - Control in Out - Coordinate system setting - Decimal point programming - Dianeter/adus programming (X axis) - Direct input not ocordinate system setting - Coordinate system setting -	- Skip	G3
- Thread cutting / Synchronous cutting - Thread cutting retract - Torque limit skip - EED FUNCTION - Automatic acceleration / deceleration - Gutting feedrate clamp - Feed per minute - Feed per revolution - Log feed override (10% unit) - Log feed units (10%	- Superimposed control	
- Torque limit skip EEDF PINCTION - Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per minute - Feed per minute - Feed per minute - Feed per revolution - Feed revolution feed - Override cancel - Override cancel - Rapid traverse override - Rapid traverse override - Rapid traverse override - Rapid traverse rate - Tangential speed constant control UNILIARY / SPINDLE SPEED FUNCTION - 1st spindle speed output - Auxiliary function lock - Constant surface speed control - Mr code function - Mr code function - Mr code function - Mr code function - Multi spindle control - Rigid trapping - Se - code function - Se - code function - Se - code function - Shindle speed override - Spindle spind	- Thread cutting / Synchronous cutting	
- Automatic acceleration / deceleration - Cutting feedrate clamp - Feed per minute - Feed per minute - Feed per minute - Feed per cevolution - Feed accelerate (10% unit) - Oo 2000 mm/m - Manual per revolution feed - Override (10% unit) - Oo 2000 mm/m - Manual per revolution feed - Override cancel - Rapid traverse override - Auxiliary function lock - Constant surface speed output - Auxiliary function lock - Constant surface speed control - Mr code function - Mr code function - Mr code function - Mr code function - Se - code function		
- Cutting feedrate clamp - Feed per revolution - Feed per revolution - Feedrate override (10% unit) - Jog feed override clow units - Grand cancel - Rapid traverse revolution feed - Rapid traverse rate - Tamential speed constant control - Rapid traverse rate - Tamential speed constant control - Starpindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M - code function - M - code function - M - code function - M - sole function - S - code function - S -		
Feed per minute Feed revolution Feed override (10% unit) Feed unit spindle control Feed unit spindle control Feed unit spindle speed override (10% unit) Feed unit spindle spindle (10% unit) Feed unit spindle speed override (10% unit) Feed unit spindle	- Automatic acceleration / deceleration - Cutting feedrate clamp	
- Feedrate override (10% unit) 0 - 2000 mm/m - Manual per revolution feed 0 - 2000 mm/m - Manual per revolution feed 0 - 2000 mm/m - Manual per revolution feed 0 - 2000 mm/m - Override cancel 8 - 2000 mm/m - Rapid traverse override - 2000 mm/m - Rapid traverse override - 2000 mm/m - Rapid traverse rate - 2000 mm/m - Rapid traverse rate - 2000 mm/m - Stapinal speed constant control - William William	- Feed per minute	
- log feed override (10% unit) 0 - 2000 mm/n - Manual per revolution feed - Override cancel - Rapid traverse override - UNILIARY / SPINDLE SPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M - code function - M - code function - M - ode function - S - code function - Rigid trapping - S - code function -	- Feed per revolution - Feedrate override (10% unit)	0 - 200
Override cancel Rapid traverse override Rapid traverse override Rapid traverse override Rapid traverse rate Rapid	- Jog feed override (10% unit)	0 - 2000 mm/m
- Rapid traverse override - Rapid traverse rate - Tangential speed constant control - MIMIARY SPINDLESPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M code function - Multi spindle control - M code function - Multipartition - Multipartition - Multipartition - Multipartition - Septiment of the spindle control - Segid rapping - Secole function - Septiment of the spindle speed override - Spindle spindle control - Spindle spindle spindle speed override - Spindle spind		
- Tangential speed constant control WMINIARY SPINDLESPEED FUNCTION - Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M code function - M code function - Multispindle control - Mild spindle control - Rigid rapping - S - code function - S4 / S5 dig - Spindle serial output - S - code function - S4 / S5 dig - Spindle spindle control - Spindle spindle control - Spindle spindle control - Spindle spindle control - Spindle s	- Rapid traverse override	F0, 25, 100
- Ist spindle orientation - Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M. code function - M. code function - M. code function - Rigid tapping - S. code function - S. code function - Rigid tapping - S. code function - Spindle speed override - Absolute/incremental programming - Addition of custom macro common variables - Alsonard cycle for drilling - Canned cycle for drilling - Canned cycle for turning - Canned cycle for turning - Canned cycle for turning - Circular interpolation by R programming - Control in/Out - Coordinate system setting - Gouton in/Out - Coordinate system setting - Goudinate system shift - Custom macro B - Decimal point programming - Decimal point programming - Decimal point programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Gouton by Spindle Spindl		
- Actual spindle speed output - Auxiliary function lock - Constant surface speed control - M- code function - Multi spindle control - Rigid tapping - S- code function - S4 / S5 dig - Spindle speed override - Automatic coordinate system setting - Canned cycle for drilling - Canned cycle for drilling - Canned cycle for drilling - Canned cycle for furning - Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system shift - Custom macro B - Decimal point programming - Doecimal point programming - Doecimal point programming - Doecimal point programming - Decimal point programming - Decimal point programming - Decimal point programming - Decimal point programming - Direct input of coordinate system shift - G code system A/ - G code system A/ - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Manual absolut	AUXILIARY / SPINDLE SPEED FUNCTION	
- Auxiliary function lock - Constant surface speed control - M - code function - M - code function - M - code function - Rigid tapping - S - code function - Signature - S - code function - S - code function - Spindle send output - Spindle speed override - Spindle system output - Spindle system control - Spindle system control - Spindle system control - Spindle system setting - Spindle system setting - Addition of custom macro common variables - Absolute/incremental programming - Addition of custom macro common variables - Automatic coordinate system setting - Canned cycle for turning - Canned cycle for turning - Circular interpolation by R programming - Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system shift - Custom macro B - Decimal point programming - Decimal point programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Direct drawing dimension programming - Direct drawing dimension programming - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Manumun program dimension - R dig - Multiple repetitive canned cycle - Optional block skip (with out hardware) - P pie		
Md signale control Multi spindle control Rigid tapping S - code function S - code function S - code function S - code function Spindle serial output Spindle speed override Absolute / incremental programming Addition of custom macro common variables #100~#199, #500~#5 Absolute / incremental programming Canned cycle for turning Canned cycle for turning Canned cycle for turning Control in/ out Coordinate system setting Gi Coordinate system setting Decimal point programming Decimal point programming Decimal point programming Diameter/ adults programming (X axis) Direct drawing dimension programming Macro executor Manual absolute on and off Maximum program dimension 8 dig Multiple repetitive canned cycle Optional block skip Optional block skip (with out hardware) 9 pice	- Auxiliary function lock	
- Multi spindle control - Rigid rapping - S - code function - Spindle serial output - Spindle speed override - Automatic coordinate system setting - Addition of custom macro common variables - Automatic coordinate system setting - Canned cycle for drilling - Canned cycle for turning - Canned cycle for turning - Control in/out - Coordinate system setting - Condinate system setting - Coordinate system system shift - Goode system A - Goode system A - Goode system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Massimum program dimension - Ret in State Setting - Spindle speed setting se		M3 dio
- S - code function	- Multi spindle control	tilg
Spindle serial output S4 / S5 dig Spindle speed override 0 - 150 Spindle synchronous control PROGRAM INPUT - Also, and the system setting - Addition of custom macro common variables #100~#199, #500~#5 - Automatic coordinate system setting - Canned cycle for drilling - Canned cycle for turning - Carcular interpolation by R programming - Corodinate system setting - Coordinate system setting - Coordinate system setting - Coordinate system shift - Coustom macro B - Decimal point programming - Coordinate system shift - Custom macro B - Decimal point programming - Decimal point programming - Decimal point programming - Decimal point programming - Diameter/adius programming (X axis) - Direct drawing dimension programming - Direct input unt of coordinate system shift - G cycle system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - R dig - Maximum program dimension - R dig - Multiple repetitive canned cycle - Optional block skip (with our hardware) - 9 pice - Optional block skip (with our hardware) - 9 pice - 2 pice -	- Kigid tapping - S - code function	S4 / S5 dio
- Spindle synchronous control ROGRAM INPUT - Absolute/incremental programming - Addition of custom macro common variables #100~#199, #500~#5 - Addition of custom macro common variables #100~#199, #500~#5 - Automatic coordinate system setting - Cannel cycle for drilling - Cannel cycle for turning - Circular interpolation by R programming - Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system setting - Coordinate system shift - Custom macro B - Decimal point programming - pocket calculator type decimal point programming - pocket calculator type decimal point programming - Diemeter drawing dimension programming - Dimeter drawing dimension programming - Direct input unt of coordinate system shift - G code system A - G code system B/C - Input unit 10 time multiply - Label skip - Marero executor - Manual absolute on and off - Maximum program dimension - Ma liple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - Optional block skip (with out hardware) - 9 pie	- Spindle serial output	S4 / S5 dig
ROGRAM INPUT - Absolute funcemental programming - Abdition of custom macro common variables - Automatic corordinate system setting - Canned cycle for drilling - Canned cycle for drilling - Canned cycle for drilling - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system shift - Coordinate system shift - Custom macro B - Decimal point programming - pocket calculator type decimal point programming - Diameter/fadius programming (X axis) - Direct input of coordinate system shift - G code system AC - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - Optional block skip - I pie - Optional block skip - Optional block s		0 - 150
- Addition of custom macro common variables #100-#199, #500-#6 - Automatic coordinate system setting - Canned cycle for drilling - Canned cycle for turning - Circular interpolation by R programming - Corton in/out - Coordinate system setting - Coordinate system setting - Coordinate system shift - Coordinate system shift - Custom macro B - Decimal point programming - Diameter/radius programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Direct drawing dimension programming - Direct drawing the system shift - G code system A - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Optional block skip - Uptional	ROĞRAM INPUT	
- Automatic coordinate system setting - Canned cycle for drilling - Canned cycle for turning - Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system setting - Coordinate system shift - Custom macro B - Decimal point programming - Denarter drawing dimension programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Direct input of coordinate system shift - G code system A - G code system A - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Masimum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - 1 pic - Optional block skip - 1 pic - Optional block skip (with our hardware) - 9 pic	- Absolute/incremental programming - Addition of custom macro common variables	#100~#199 #500~#9
- Canned cycle for turning - Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system setting - Coordinate system shift - Custom macro B - Decimal point programming - pocket calculator type decimal point programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Direct input of coordinate system shift - G code system A - G code system A - G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Masimum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - Optional block skip - 1 pie	- Automatic coordinate system setting	
- Circular interpolation by R programming - Control in/out - Coordinate system setting - Coordinate system setting - Coordinate system setting - Coordinate system setting - Decimal point programming - Decimal point programming - Decimal point programming - Diameter/ radius programming (X axis) - Direct drawing dimension programming - Direct input of coordinate system shift - G code system A - G code syste		
Cordinate system setting Coordinate system setting Coustom macro B Decimal point programming pocket calculator type decimal point programming Diameter/ radius programming (X axis) Diameter/ radius programming (X axis) Direct drawing dimension programming Direct input of coordinate system shift Gode system A G	- Circular interpolation by R programming	
- Coordinate system shift - Custom macro B - Decimal point programming - Decimal point programming - Diameter fradius programming (X axis) - Direct input of coordinate system shift - G code system A - G code system A - G code system B/C - Input unit 10 time multiply - Label skip - Marco executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - Optional block skip - I pie	- Coordinate system setting	G
- Decimal point programming pocket calculator type decimal point programming - Diameter/radius programming (X axis) - Direct drawing dimension programming - Direct input of coordinate system shift - G code system A/C - G code system B/C - Input unit 10 time multiply - Label skip - Marco executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip - Optional block skip - 1 pie - Optional block skip - 1 pie - Optional block skip (with our hardware) - 9 pie	- Coordinate system shift	
pocket calculator type decimal point programming Diameter/radius programming (X axis) Direct drawing dimension programming Direct input of coordinate system shift G code system A G code system B/C Input unit 10 time multiply Label skip Matero executor Manual absolute on and off Maximum program dimension Malliple repetitive canned cycle Multiple repetitive canned cycle Optional block skip Optional block skip 1 pie Optional block skip 1 pie	- Decimal point programming	
- Direct drawing dimension programming - Direct input of coordinate system shift - G code system AC - G code system BC - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Manual absolute on and off - Manual program dimension - Multiple repetitive canned cycle - Optional block skip - Optional block skip - 1 piec - Optional block skip (with our hardware) - 9 piec	pocket calculator type decimal point programming	
Direct input of coordinate system shift		
- G code system B/C - Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip	- Direct input of coordinate system shift	
- Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Optional block skip	- G code system R/C	
- Macro executor - Manual absolute on and off - Manual passolute on and off - 8 diq - Maximum program dimension 8 diq - Multiple repetitive canned cycle G70 - G - Multiple repetitive canned cycle - Optional block skip - Optional block skip 1 pie - Optional block skip (with out hardware) 9 ppie	- O CORC SYSTEM D/C	
- Manual absolute on and off 8 dig - Maximum program dimension 8 dig - Multiple repetitive canned cycle G70 - G - Multiple repetitive canned cycle - Optional block skip 1 pie - Optional block skip (with out hardware) 9 pie	- Input unit 10 time multiply	
- Maximum program dimension 8 dij - Multiple repetitive canned cycle G70 - G - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip 1 pie - Optional block skip (with out hardware) 9 ppie	- Input unit 10 time multiply - Label skip	
- Multiple repetitive canned cycle - Optional block skip - Optional block skip - Optional block skip (with out hardware) - Optional block skip (with out hardware)	- Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off	
- Optional block skip 1 piec - Optional block skip (with out hardware) 9 piec	- Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension	
- Spania stock skip (with our nardware) 9 pier - Parity check	- Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle	G70 - G
	- Input unit 10 time multiply - Label skip - Macro executor - Manual absolute on and off - Maximum program dimension - Multiple repetitive canned cycle - Multiple repetitive canned cycle - Optional block skip	8 dig G70 - G

- Program_number - Program stop / end (M00, M01 / M02, M30)	O4 digi
- Programmable data input (G10) - Sequence number	N5 digi
- SUB program call	4 folds nested
- Tape code : ISO / EIA auto recognition - Tape format for FANUC Series15	EIA RS422/ISO840
- Work coordinate system TOOL FUNCTION / TOOL COMPENSATION	G52 - G59
- Automatic tool offset	
- Direct input of offset value measured - Direct input of offset value measured B	
- T - code function - Tool geometry / wear compensation	T2 2 digit
- Tool life management - Tool nose radius compensation	
- Tool offset	G43, G44, G49
- Tool offset pairs (TT2000/2500 series) - Tool offset pairs (TT1500/1800 series)	64 pairs 64 pairs
- Tool offset pairs (TT1500/1800 series) - Tool offset value counter input - Y-axis offset (TT SY type machine)	1
EDITING OPERATION	
- Back ground editing - Extended part program editing	
- Number of registered programs	125 ea
- Part program editing - Part program storage length *1	640 m
- Program protect SETTING AND DISPLAY	
- Actual cutting feedrate display	
- Alarm display - Alarm history display	
- Current position display - Directory display and punch for each	
 Display of spindle speed and T code at all scr 	reens
- External message display - Help function	
- Lock function - Multi-language display	english
- Operation history display	Englist
- Parameter setting and display - Program name display	31 characters
- Run hours / parts count display - Self-diagnosis function	
- Servo setting screen	
- Spindle setting screen - Status display	
- Tool path graphic display DATA INPUT/OUTPUT	
- External key input	
- External program input - External work number search	15 points
- Memory card input/output	CH1.interface
- Reader/puncher interface - RS232C interface	VIIIIIIIII
OTHERS - Cycle start and lamp	
- Display unit - Feed hold and lamp	10.4" Color LCI
- MDI unit	for 10.4" LCI
- NC and servo ready - PMC system	PMC-SB7
- Reset / rewind	
- Reset / rewind INTERFACE FUNCTION	Embedded etherne
- Ethernet function OPERATION GUIDANCE FUNCTION	
- EZ Guidei (Conversational Programming Solu	tion)
OPTIONAL SPECIFICATIONS AXIS CONTROL	
- Chuck and tail stock barrier	
- Stored stroke 2 and 3 - Stroke limit check before move	
OPERATION	·
- DNC operation (Reader/puncher interface is r - Manual handle feed	equired) 2 unit
- Manual handle interruption - Reference position shift	
- Tool retract and recover	
INTERPOLATION FUNCTIONS - 3rd / 4th reference point reurn	
- Circular threading - Multi step skip	
- Variable lead threading	
FEED FUNCTION - Advanced preview control	
- External deceleration - Feed forward function	
- Feed stop PROGRAM INPUT	
- Automatic corner override	
- Coordinate system rotation - Interruption type custom macro	
- Optional block skip (with hardware)	9 piec
- Pattern data input - Work coordinate system preset	
- Work coordinate system preset TOOL FUNCTION / TOOL COMPENSATION	120 '
Addition of tool pairs for tool life managemen Tool monitoring system	<u>-</u>
- Tool offset pairs (TT2000/2500 series) - Tool offset pairs (TT1500/1800 series)	99 / 400 / 999 pairs 99 / 400 / 999 pairs
- Tool offset pairs (TT1500/1800 series) EDITING OPERATION	
- Number of registered programs - Part program storage length *1	200 / 400 / 1000 e; 1280 / 2560 / 5120 n
- Play back SETTING AND DISPLAY	<u> </u>
- Directory display of floppy cassette	
DATA INPUT/OUTPUT - Data server	Only for 1 patl
- DNC1 control	
- Remote buffer CONVERSATIONAL PROGRAMMING FUNCTION	Only for 1 patl
- A	b cycle function - Automatic process determination nimated simulation function - C-axis FAPT function - Y-axis FAPT function - Back machining function
	Conversational screen display language change ove
ROBOT INTERFACE	



Sales & Support Network

ARGENTINA/Rosario AUSTRALIA/Melbourne/Sydney AUSTRIA/Vienna BELGIUM/Gullegem BRAZIL/Sao paulo BULGARIA/Sofia CANADA/Edmonton/Montreal/Toronto $\label{lem:converse} \begin{tabular}{ll} $$ \clim{CHILE/Santiago CHINA/Beijing/Chongqing/Guangzhou/Shanghai/Shenyang COLOMBIA/Bogota CZECH/Bmo DENMARK/Randers EGYPT/Cairo FINLAND/Tampere CAIRO CZECH/Bmo DENMARK/Randers EGYPT/Cairo CZECH/Bmo DENMARK/RANDERS CZECH/Bmo DENMARK/RANDERS CZECH/Bmo DENMARK/RANDERS CZECH/Bmo DENMARK/RANDERS CZECH/Bmo D$ FRANCE/Annecy GERMANY/Dusseldorf GREECE/Athens HONG KONG/Kowloon HUNGARY/Budapest INDIA/Bangalore/Pune INDONESIA/Jakarta ISRAEL/Herzlia ITALY/Parma MALAYSIA/Puchong MEXICO/Guadalajara /Mexico City /Monterrey /Vera Cruz NETHERLANDS/Goorn NEW ZEALAND/Auckland NORWAY/Oslo PAKISTAN /Islamabad POLAND/Krakow PORTUGAL/Lisbon ROMANIA/Bucharest RUSSIA/Moscow SINGAPORE/Singapore SLOVENIA/Ljubljana SOUTH AFRICA/Kempton Park SPAIN/Barcelona SWEDEN/Stockholm SWITZERLAND/Zurich TURKEY/Istanbul THAILAND/Bangkok U.A.E/Sharjah U. K./Leamington U.S.A./Atlanta/Birmingham $/Philadelphia/Phoenix/Pittsburgh/Portland/Rochester/Salt\ Lake\ City/San\ Diego/San\ Francisco/Seattle/Springfield/St.\ Louis/Tampa/Iulsa\ VENEZUELA/Valencia\ VIETNAM/Hanoi$



Head Office: Doosan Tower 22nd FL., 18-12, Euljiro-6Ga, Jung-Gu, Seoul, Korea 100-730 Tel: ++82-2-3398-8651 Fax: ++82-2-3398-8699

E-mail: master@domss.com

Doosan Infracore America Corp.: 8 York Avenue, West Caldwell, NJ 07006, U.S.A. Tel: ++1-973-618-2500 Fax: ++1-973-618-2501

China Representative Office: 9-101 Xinmao Building, 99 Tianzhou Road, Caohejing Hi-Tech Development Shanghai, China 200233 Tel: ++86-21-5445-1155 (812,815) Fax: ++86-21-64403389